

Amendments to the Drawings:

The attached sheet of drawings includes changes to the title of former Fig. 5 (now Fig. 5A), and includes new Fig. 5B. This sheet, which includes Figs. 3, 4, 5A and 5B, replaces the original sheet including Figs. 3-5. In new Fig. 5B, the features claimed in original claim 12 are illustrated.

Attachment: Replacement Sheet

REMARKS

In the specification, the paragraph at page 3, line 5 has been amended to provide antecedent basis for claim 4. The paragraph at page 4, line 21 has been amended to refer to item 40 in former Fig. 5 (now Fig. 5A) and to describe the feature claimed in claim 12. In addition, the "Brief Description of the Drawings" section has been amended to account for new Fig. 5B (former Fig. 5 has been relabeled as Fig. 5A, and a brief description of new Fig. 5B provided).

In the drawings, new Fig. 5B has been added to illustrate the features claimed in original claim 12. Former Fig. 5 has been relabeled as Fig. 5A.

Claim 1 has been amended to incorporate the subject matter of claim 13, and claim 13 has been canceled. In addition, claims 14 and 15 have been amended for clarification in view of the amendment to claim 1. Claim 11 has been amended to correct a minor typographical error. The claim cancellation and amendments are made without prejudice to the filing of continuing applications. No new matter is added by the above amendments. With the amendments, claims 1-12 and 14-18 are pending.

Turning to the Office Action, the drawings stand objected to as failing to comply with 37 CFR 1.84(p)(5); the Information Disclosure Statement filed July 7, 2004 has not been considered

for allegedly failing to comply with 37 CFR 1.98(a)(2); the specification stands objected to as failing to provide proper antecedent basis for subject matter in claim 4; claims 1-18 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite; claims 1-7 stand rejected under § 102(a) as being anticipated by U.S. Patent 6,626,740 ("Baker"); and claims 8-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker.

The § 112 rejections are addressed by the amendments to the specification and to claim 11. The remaining objections and rejections are addressed below.

Objections to the Drawings

In the first objection to the drawings, the Office contends that the drawings fail to include reference number "40," mentioned in the specification. Applicants respectfully point out that Fig. 5 does include a reference number 40 (see left side of the figure), corresponding to an asperity on the polishing pad. Applicants have amended the specification to indicate that asperities are shown as reference number 40 in the drawings.

In the second objection, the Office states that the "preshaped asperities" in claim 11 and "bumps" in claim 12 must be shown in the drawings (or the features canceled from the claims). In response, Applicants submit herewith new Fig. 5B,

illustrating the "bumps" of claim 12. The asperities of claim 11 are shown in Fig. 5, as discussed above.

Applicants respectfully submit that the objections to the drawings have been overcome. Withdrawal of the objections is therefore respectfully requested.

Objections to the Specification

The specification stands objected to as failing to provide proper antecedent basis for the subject matter in claim 4. This objection is overcome by the present amendment to the paragraph at page 3, line 5 of the specification. Withdrawal of the objection is respectfully requested.

Information Disclosure Statement

The Office has not considered the Information Disclosure Statement ("IDS") of July 7, 2004 (filed July 2, 2005), because copies of the cited references were not enclosed with the IDS.

Applicants respectfully submit that the July 7 IDS complies with the requirements of the Patent Office. Pursuant to an Official Gazette Notice dated August 5, 2003, the Office waived the requirement under 37 CFR 1.98(a)(2)(i) for submitting a copy of each cited U.S. patent and each U.S. patent application publication for all U.S. national patent applications filed after June 30, 2003. See USPTO OG Notices: 5

August 2003. Applicants believe this waiver was effective upon publication of the Notice, i.e., August 5, 2003.

The present application was filed on January 6, 2004, which is after the June 30, 2003 cut off of the OG Notice. The July 7 IDS cites U.S. Patents and published applications only. Accordingly, the IDS falls within the scope of the OG waiver described above. Applicants, therefore, were not required to provide copies of the cited references.

For the convenience of the Office, Applicants enclose herewith a copy of the July 7, 2004 IDS and PTO 1449 form. Entry of the IDS and consideration of the references cited therein are respectfully requested. The Office is authorized to charge any fee associated with the re-submission of the IDS to our deposit account, number 13-2490.

Rejection Under 35 U.S.C. § 102(a)

Claims 1-7 stand rejected under § 102(a) as being anticipated by Baker. Applicants respectfully submit that the claims, as amended, are not anticipated by the reference.

The amended claims require the structure formed by the claimed method to have a height differential between the highest and lowest points on the structure of 0.5 microns or greater. Baker does not teach this limitation. The height differentials seen in Baker are orders of magnitude smaller than those of the amended claims. See for example Table 1 in Baker, indicating a

waviness on the polished surface of 9.4 angstroms (1 angstrom is 0.0001 microns). Baker, therefore, does not teach every element of the claimed invention. Accordingly, claims 1-7 are not anticipated by Baker. Withdrawal of the § 102 rejection is therefore respectfully requested.

Rejection Under 35 U.S.C. § 103

Claims 8-18 stand rejected as being unpatentable over Baker. Applicants respectfully disagree with the Office's position.

Baker does not teach or suggest the presently claimed invention. In fact, Baker explicitly teaches away from the claimed invention. Baker relates to a polishing pad for use in chemical mechanical polishing (CMP) that locally deforms under polishing pressure. Baker, abstract. As with other prior art CMP systems, Baker considers an ideal polished substrate surface to exhibit low waviness, low flatness, low roughness, no raised edge, and low dub off (dub off is interpreted at page 5 of the Office Action as corner rounding). Baker, col. 1, lines 63-65, and col. 2, lines 41-44. Table 1 of Baker illustrates some values of surface waviness and roughness of a substrate polished with Baker's polishing pad. These values are generally in the range of 5.8 to 11.4 angstroms. Baker, col. 9, table 1.

Applicants' amended claims are directed to a method for micromachining a structure using CMP. The height differential

between the highest and lowest point in the structure thus formed is 0.5 microns or greater.

Baker fails to disclose or suggest the claimed invention. The maximum surface waviness disclosed for Baker's polishing pad is about 9.4 angstroms. Thus, Baker's surface waviness is orders of magnitude smaller than the claimed height differential (9.4 angstroms is 0.00094 microns). Further, Baker seeks to minimize waviness, surface roughness, etc., and therefore teaches in a direction opposite to the claimed invention (see Baker, col. 1, lines 62-65: "an ideal polished substrate surface has the following characteristics: low waviness. . . low roughness; no raised edge; low dub-off.") A person of ordinary skill in the art, reading Baker, is therefore motivated to further increase the planarity of a polished surface, rather than deliberately providing an at least partially non-planar surface, as with the claimed invention.

The Office contends that it would have been obvious to use the height differential set forth in claims 13-15 since "it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimal or workable ranges involves only routine skill in the art." Office Action, page 9, paragraph 11. Applicants disagree. The height differentials set forth in claims 13-15 (and now in amended claim 1) are outside the ranges contemplated by the reference by

about two orders of magnitude. Thus, it cannot reasonably be considered that Applicants have merely discovered the optimum or working ranges of the reference. Rather, Applicants' invention is completely outside the ranges of the prior art.

The remaining dependent claims not specifically discussed herein are ultimately dependent upon the independent claims. Accordingly, the arguments presented above in support of the claims are applicable to all the claims, including the dependent claims.

For at least the above reasons, it is respectfully submitted that the claims are not rendered obvious by Baker. Withdrawal of the § 103 rejection of claims 8-18 is therefore respectfully requested.

Applicants submit that the pending claims are now in condition for allowance and notice to this effect is respectfully requested. Should the Examiner believe a discussion of this matter would be helpful, the Examiner is invited to telephone the undersigned at (312) 913-0001.

Respectfully submitted,

**McDonnell Boehnen
Hulbert & Berghoff LLP**

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By: Raafat Shaltout
Raafat Shaltout
Reg. No. 45,092

**McDonnell Boehnen
Hulbert & Berghoff LLP**
300 South Wacker Drive
Chicago, Illinois 60606
Telephone: (312) 913-0001